

I CLAIM:

1. A method for energy storage and recovery for load moving machinery powered by an induction motor which is controlled by a first inverter, the steps comprising

driving said induction motor to act as a generator and create reverse power when lowering or braking a load, said reverse power combined with unused power when said load hoisting machinery is at small load or idle, said combined powers being defined as rest power,

utilizing said rest power for charging a capacitor,

controlling said rest power by a dual inverter, and

discharging said capacitor to supply power to said induction motor when said motor is consuming power in excess of its average power consumption.

2. The method of claim 1 including

measuring the energy stored in said capacitor,

measuring the voltage at the power input side of said first inverter,

transmitting said energy value of said stored energy and said measured voltage to a programmable logic controller, and

comparing said measured voltage in said controller with a preset value for determining whether said capacitor should be charged or discharged.

3. The method of claim 2 wherein said controller determines that if the measured voltage at the power input side of said first inverter is higher than said set value, said dual inverter converts the output of said first inverter to charge said capacitor, and if said voltage is lower than said set value, said dual inverter converts and controls the output of said capacitor delivered to said first inverter to supply said induction motor with power from said capacitor.

4. A load moving machinery energy storage system comprising
an induction motor interconnected to a wire rope drum for raising and lowering a load, said motor controlled by a first inverter,
an energy storage system including
a capacitor for storing and discharging energy, said capacitor being controlled by a dual inverter,
a programmable logic controller (PLC) controlling said dual inverter,
means for sensing voltage at the power input side of said first inverter and for sensing voltage in said capacitor,
programmed logic for said PLC for comparing said sensed voltages with a set voltage value,
an engine driven AC generator (ACG) producing power for said load moving machinery,
and
a diode controlling the AC output of said ACG.